Nine Eagles™

Distributed by robbe

Operating Instructions

SOLO PRO 319 RTF

2.4 GHz

No. NE2517

Explanation of specialist terms:

Climb and descent ("Throttle/pitch"): This controls the model's climb and descent.
Yaw: The model's movement around the vertical axis; the helicopter rotates to right or left.
Elevator: The model's movement around the lateral axis,
forward or reverse flight
Roll: The model's movement around the longitudinal axis,
sideways movement to right or left
Mode 1: Function assignment of the control movements relative to the stick movements.
In this case collective pitch / motor speed (throttle) and roll are controlled by the right-hand stick; pitch-axis and tail rotor by the left-hand stick.
Mode 2: Function assignment of the control movements relative to the stick movements.
In this case collective pitch / motor speed (throttle) and tail rotor are controlled by the left-hand stick; pitch-axis and roll by the right-hand stick.
Dual Rate: Switchable travel reduction for control movements.
Binding: Creating the radio link between transmitter and receiver.

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Be sure to read these Safety Notes before you assemble your model. Always keep to the procedures and settings recommended in the instructions.

If you are operating a radio-controlled model aircraft, helicopter, car or boat for the first time, we recommend that you enlist an experienced modeller to help you.

Safety Notes

Radio-controlled models are not toys in the usual sense of the term. Young persons under fourteen years should only be allowed to operate them under the supervision of an adult.

Building and operating these models requires technical expertise, manual skills, a careful attitude and safety-conscious behaviour.
Errors, negligence and omissions in building or flying these models can result in serious personal injury and damage to property.

Since the manufacturer and vendor are not in a position to check that your models are built and operated correctly, all we can do is bring these hazards expressly to your attention. We deny all further liability.

Helicopter rotors, and all moving parts generally, constitute a constant injury hazard.
It is essential to avoid touching such parts.

Please bear in mind that motors and speed controllers may become hot when operating.
It is essential to avoid touching such parts.

Do not stand close to the hazard area around rotating parts when an electric motor is connected to the flight battery.
You must also take care to keep all other objects away from moving or rotating parts.

Observe the instructions provided by the battery manufacturer.
Overcharged or incorrectly charged batteries may explode. Take care to maintain correct polarity.

Ensure the equipment is protected from dust, dirt and moisture contamination. Do not subject the system to excessive heat, cold or vibration.

Use the recommended charger only, and charge the batteries only for the prescribed period.

Check your equipment for damage at regular intervals, and replace defective components with genuine spare parts.

Do not re-use any devices which have been damaged in a crash or by water, even when they have dried out again.
Either send the equipment to the robbe Service Department for checking, or replace the parts in question.
Crash or water damage can result in concealed defects which may lead to failure in subsequent use.
Use only those components and accessories which we specifically recommend.

Do not carry out modifications to the radio control system components apart from those described in the instructions.

Operating the model

• Never fly over or towards spectators or other pilots, and maintain a safe distance from them at all times.
• Never endanger people or animals.
• Never fly or run the model close to high-tension overhead cables or residential areas.
• Do not operate your model in the vicinity of canal locks or open waterways.
• Do not operate your model from public roads, motorways, paths and squares etc.; use authorised model flying sites only.

• **Never operate the model in stormy weather.**

Never “point” the transmitter aerial straight at the model when operating it. The transmitter signal is at its weakest in this direction. It is always best to stand with the long side of the aerial angled towards the model.

Insurance

Ground-based models are usually covered by standard personal third-party insurance policies. In order to fly model aircraft you will need to extend the cover of your existing policy, or take out specific insurance.
Check your insurance policy and take out new cover where necessary.

Liability Exclusion

robbe Modellsport is unable to ensure that you observe the assembly and operating instructions, or the conditions and methods used for installing, operating and maintaining the model components.
For this reason we accept no liability for loss, damage or costs which are due to the erroneous use and operation of our products, or are connected with such operation in any way.

Regardless of the legal argument employed, our obligation to pay compensation is limited to the invoice value of those robbe products directly involved in the event in which the damage occurred, unless otherwise prescribed by law. This does not apply if the company is deemed to have unlimited liability according to statutory regulation due to deliberate or gross negligence.

Set contents:
1 x SOLO PRO 319 RTF
1 x 2.4 GHz transmitter
1 x Lithium-Ion-Polymer battery
1 x Charger and mains PSU for the flight battery
1 x Screwdriver
1 x Operating and Flying Instructions

Please be sure to observe the Safety Notes concerning the handling of Lithium-Ion-Polymer batteries (page 12).

Dear customer,
Congratulations on choosing a factory-assembled model helicopter from our range. Many thanks for placing your trust in us.
The model can be completed and made ready to fly very quickly. Please read right through these instructions before attempting to fly the model for the first time, as this will make it much easier to operate the model safely.

All directions, such as “right-hand”, are as seen from the tail of the model, looking forward.

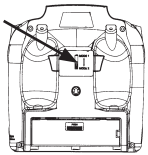
Specification:

Main rotor Ø:	approx. 324 mm
Tail rotor Ø:	approx. 90 mm
Overall length:	approx. 350 mm
Weight:	approx. 200 g
Motor:	Brushless motor
Power supply:	LiPo battery, 7.4 V / 600 mAh

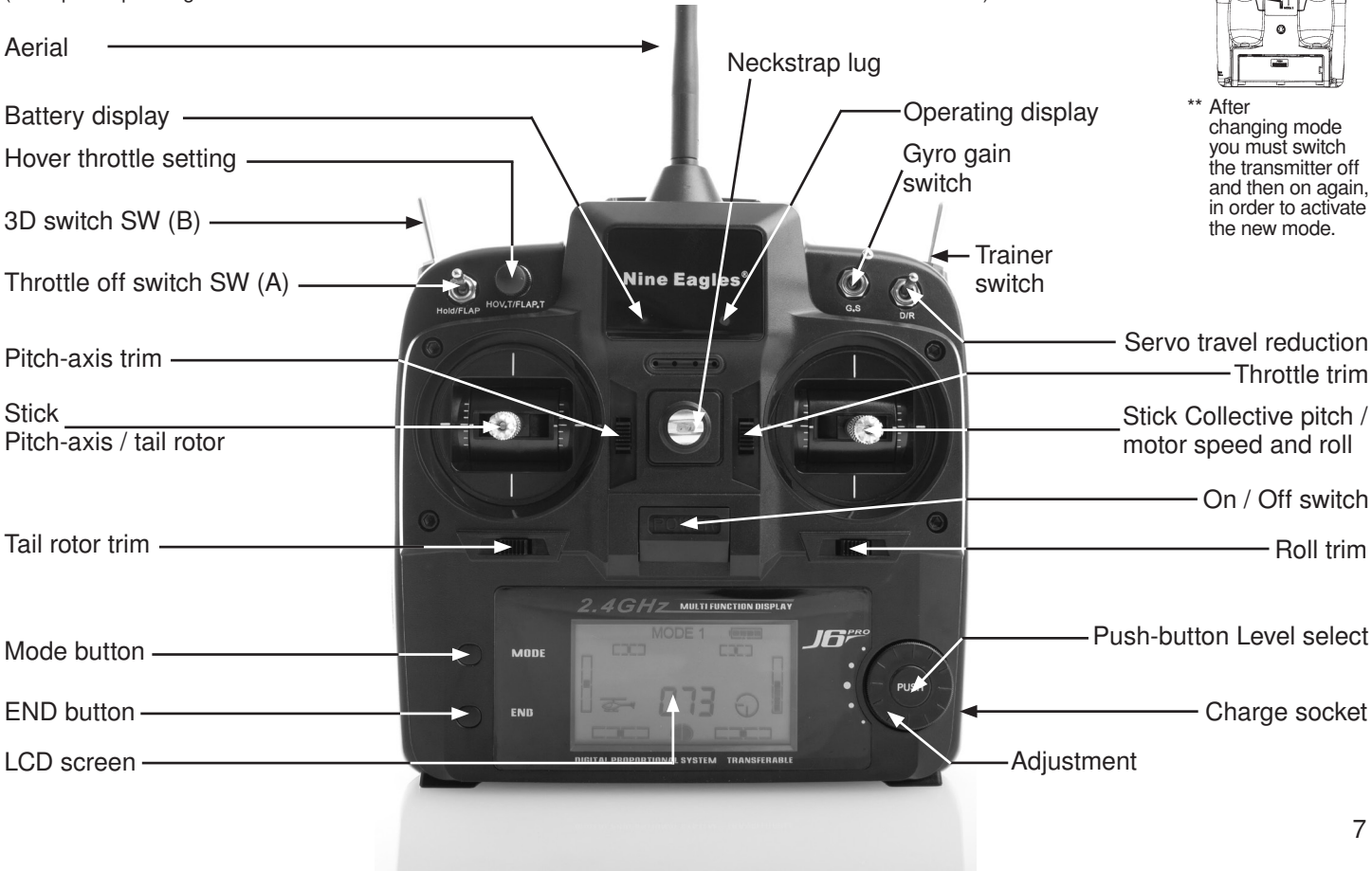
Recommended accessories:
8 x 8005 NiMH AA-cell, 1.2 V / 2500 mAh
1 x F1415 Transmitter charge lead
1 x 8564 POWER PEAK® Uni 7 EQ 230V

Transmitter description* (Mode 1) - The mode select switch is located on the back of the transmitter**

(*Complete operating instructions for the J6 transmitter can be found in the Download area at www.robbe.com)

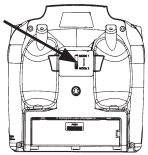


** After changing mode you must switch the transmitter off and then on again, in order to activate the new mode.

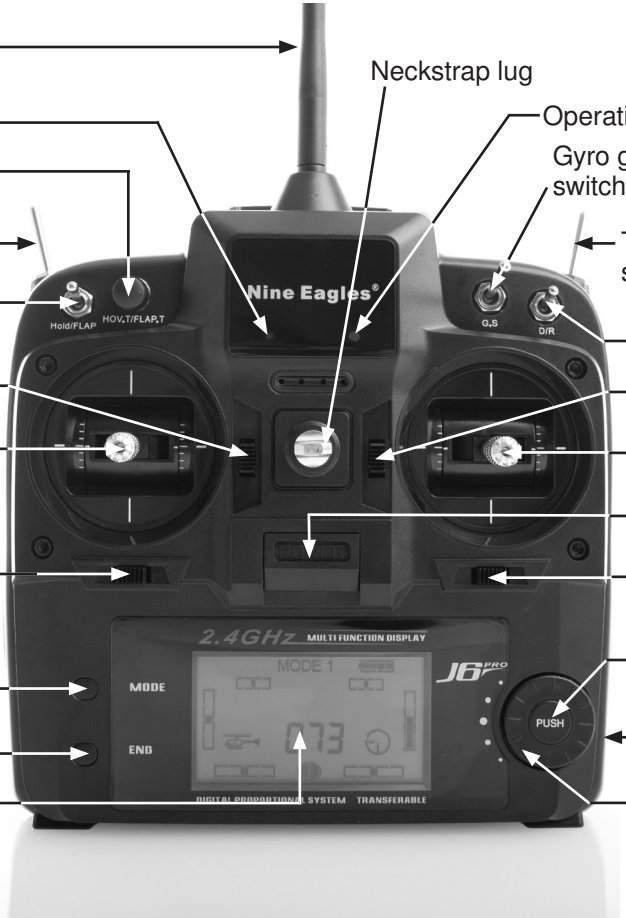


Transmitter description* (Mode 2) - The mode select switch is located on the back of the transmitter**

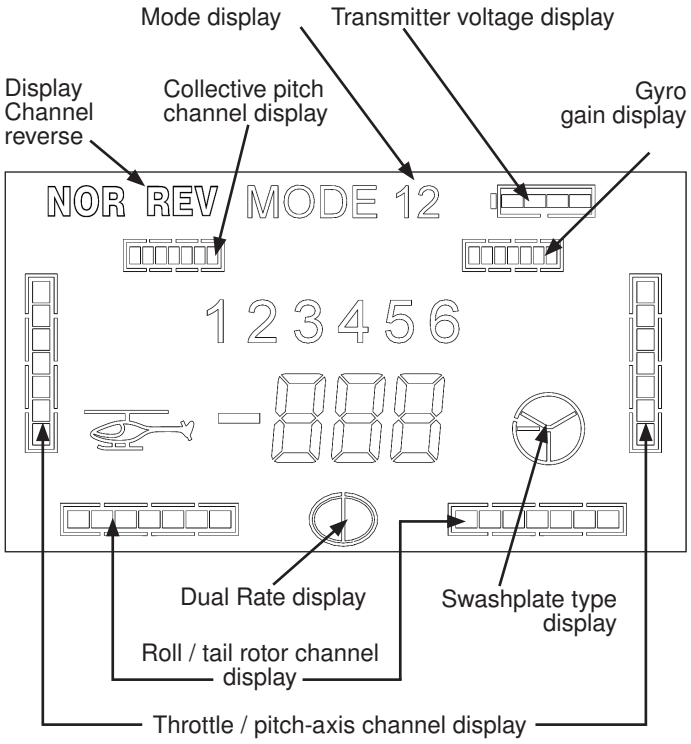
(*Complete operating instructions for the J6 transmitter can be found in the Download area at www.robbe.com)



** After changing mode you must switch the transmitter off and then on again, in order to activate the new mode.



Transmitter LCD display



Collective pitch and throttle adjustment (default settings)

Normal flight

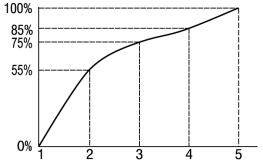
Throttle		Collective pitch	Bracket
5	100%	65	+12°
4	85%	60	
3	75%	55	+5°
2	55%	50	
1	0%	45	−2°

3D flying

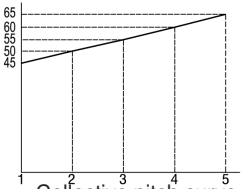
Throttle		Collective pitch	Bracket
5	100%	70	+13°
4	100%	60	
3	100%	52	0°
2	100%	40	
1	100%	30	−13°

Gyro gain Adjustment

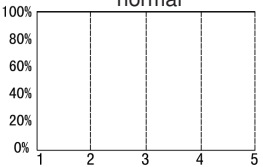
27%



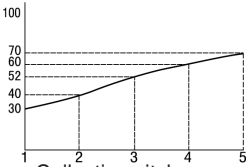
Throttle curve normal



Collective pitch curve normal

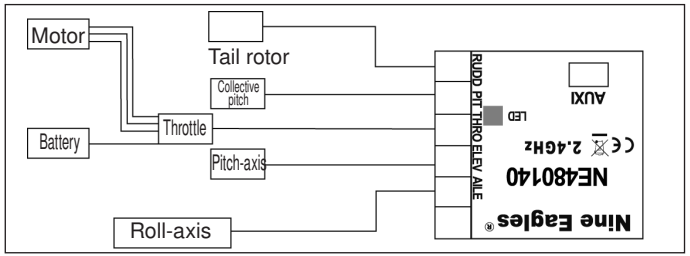


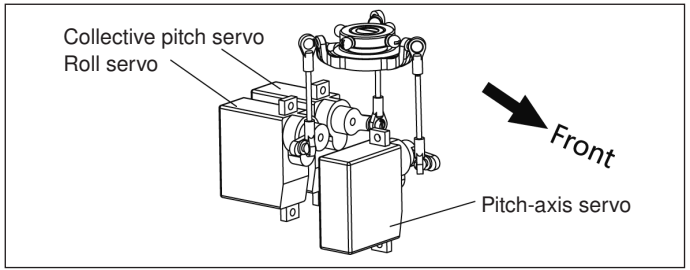
Throttle curve 3D



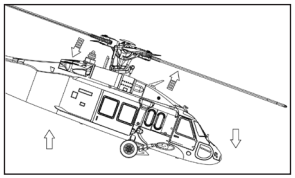
Collective pitch curve 3D

Receiver outputs

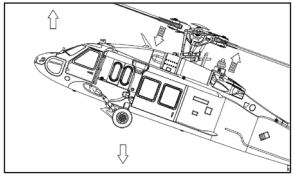




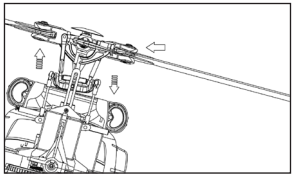
Flybarless check before the first flight



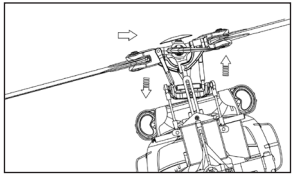
When the model's nose tilts down, the swashplate tilts backwards.



When the model's nose rises, the swashplate tilts forwards.

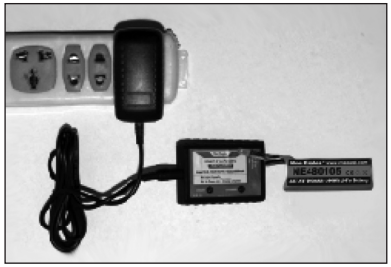


When the model rolls to the left, the swashplate tilts to the right.



When the model rolls to the right, the swashplate tilts to the left.

Charging the flight battery



Connect the battery charger to the mains PSU, and plug the PSU into a mains socket.
The red monitor LED on the charger lights up, and the charger emits a brief "beep". Connect the battery to the charger.
The charger emits a brief "beep"; during the charge process the green monitor LED on the charger flashes.
When the charge process is complete, you will hear a further brief "beep", and the green monitor LED on the charger glows constantly. Disconnect the battery from the charger, then disconnect the mains PSU from the mains socket.

Safety Notes
The battery must not be left unsupervised during the charge process or be placed on an inflammable surface. Protect from damp. Do not subject it to direct sunshine, and do not cover the charger.
Do not charge batteries that are hot to the touch. Allow batteries to cool down to ambient temperature. Charge the battery only using the charger included in the set; do not use any other charger. The charger should only be used to charge the battery included in the set. Not suitable for charging the transmitter battery!

Re-binding the transmitter

This procedure is only necessary after replacing individual components.

Fig. 1

Fig. 2

Move the Trainer switch to the forward position (Fig. 1), then switch the transmitter on (Fig. 2). The transmitter screen displays "S-H" and flashes; at the same time you will hear a constant warning sound. Connect the flight battery (Fig. 3).
The re-binding process is complete when the LCD screen on the transmitter switches to normal mode and the warning sound ceases. Do not touch the model or the transmitter during the binding process.

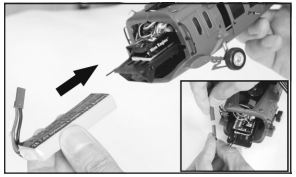


Fig. 3

Safety Notes regarding LiPo batteries:

- Do not place the battery in water or any other liquid.
- Never heat or incinerate the pack, or place it in a microwave oven.
- Avoid short-circuits, and never charge the battery with reversed polarity
- Do not subject the battery to pressure or shock loads, and never distort or throw the pack
- Never solder directly to the battery
- Do not modify or open the battery
- Batteries must only be charged with a suitable charger; never connect the battery directly to a mains power supply.
- Never charge or discharge a battery in bright sunlight, or close to a heater or open fire.
- Do not use the battery in areas subject to high levels of static electricity.
- Any of these errors can result in damage to the battery, explosion or fire.
- Keep the battery out of the reach of children
- If electrolyte should escape, do not expose it to fire, as the material is highly inflammable and may ignite.
- Do not allow fluid electrolyte to come into contact with eyes. If this should happen, flush with copious amounts of water and contact a doctor without delay.
- The fluid electrolyte can also be removed from clothing and other objects by rinsing with copious amounts of water.

LIABILITY EXCLUSION

Since robbe Modellsport is not in a position to monitor the handling of these batteries, we expressly deny all liability and guarantee claims where the batteries have been incorrectly charged, discharged or handled.

Flight preparation

Open the battery compartment and insert the dry or rechargeable cells. Close the battery compartment. Move all the switches to the forward position, then switch the transmitter on (Fig. 1). If switch "A" or "B" is at the "ON" position, the screen will flash and the transmitter will beep; at these switch positions the transmitter cannot be switched off.
Move the collective pitch / throttle stick and trim to their lowest position. Otherwise the motors will not start.
Carefully pull the canopy forward and off, fit the charged LiPo flight battery into the support frame on the helicopter, and connect the LiPo flight battery (Fig. 2). Do not touch the throttle control. Do not touch the model for at least three seconds, otherwise the initialisation process cannot take place.

Repeat this procedure every time you wish to fly the model.

The "3D" aerobatic switch SW(B) should only be operated by experienced pilots. Moving the switch to the "ON" position sets a system rotational speed suitable for aerobatics.
The hover rotor speed can be adjusted using the "Hover throttle setting" rotary knob.

Note: the 2.4 GHz transmitter and receiver are supplied already bound at the factory. It will only be necessary to bind the system again after a repair, or if you replace a component.

Fig. 1

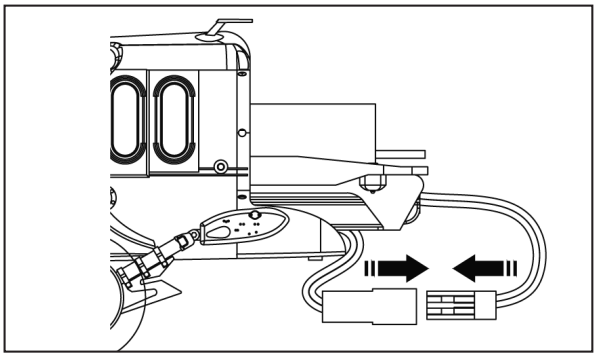


Fig. 2

Flight preparation

Check the correct position of the swashplate before the first flight. The swashplate must sit exactly horizontal when viewed from the side and front of the model. Position the model on a totally flat surface. Now move the throttle stick to the lowest throttle position, and switch the transmitter on. Switch the transmitter on. Check that the pitch-axis, roll and tail rotor trim are all in the neutral positions. Now connect the flight battery.

Remove the canopy and check the swashplate alignment. If it is not horizontal, you must correct it manually. Remove the battery and turn the transmitter off. Disconnect the appropriate ball-link. You can adjust the pushrod length by turning the ball-link clockwise or anti-clockwise. Re-connect the ball-link. Repeat this step until the swashplate is correctly positioned on the model.

Fine trimming is carried out at the transmitter during test-flying.

Check the main rotor blade attachment. The blades must be able to swivel smoothly, without jamming. They should not be too loose, otherwise vibration may occur.

We recommend that you run-in the motors for the period of one battery charge: run the motor at a reasonable speed (around 1/4 throttle); the model must not take off. You can carry out the first flight after recharging the flight battery.

Important Notes

Take-off: use the 3D switch for aerobatics only. To take off, slowly and steadily increase rotor speed until the model is hovering approximately at eye-level. At the same time adjust the trims until the helicopter is flying stably and hovering over one point. At low height (approx. 10 – 15 cm above the ground) the model cannot be trimmed accurately due to the turbulence generated by the rotor.

Landing: slowly and steadily reduce the throttle setting until the model descends and touches down. Never reduce the throttle setting abruptly.

After the landing disconnect the flight battery from the receiver, and only then switch the transmitter off.

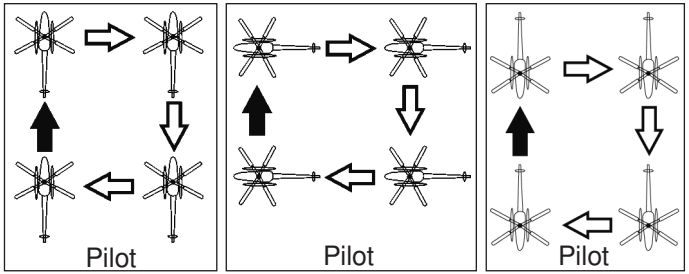
Caution: Stopping (obstructing) the rotor blades when they are turning can cause serious damage to the mechanical system, and may even result in a fire. If the propeller is forcibly stopped, immediately move the throttle stick back to Idle!

Note regarding the flight battery: as soon as you notice a reduction in motor power, land immediately and disconnect the battery. Never continue flying until the battery is flat, as this causes a deep-discharge condition which results in permanent damage. Allow the battery to cool down before recharging it.

Replacing the rotor blades: If a rotor blade is damaged, replace it immediately. When fitting the new rotor blade, tighten the retaining screw just to the point where the blade still swivels smoothly.

The first few flights

Ideally the first flight should take place in a large indoor space devoid of obstructions. If you have to fly the model in the open air, wait for a day with **totally flat calm conditions**. We recommend that you ask an experienced helicopter pilot to help you during the first few flights.



Once the model is properly trimmed, you can practise hovering, and carry out manoeuvres such as circles, squares, rectangles and figures-of-eight. Initially it is always best to stand about two metres away from the model, behind or at right-angles to it; this avoids giving incorrect control commands. You can fly a square pattern by alternating the direction of flight: away from the pilot, to the pilot's right, and then towards the pilot again.

Important: Check the state of charge of the transmitter batteries before each flight, and recharge them when necessary. It is essential to charge the flight battery before flying the model.
Tip: when the helicopter is flying with the nose pointing towards you, the controls are reversed (apart from the throttle control).

Trim settings Mode 1

Throttle trim:
If the rotor starts to move without the throttle stick being touched, or does not respond to stick movements, you must adjust the throttle trim until the rotor is stationary.

Tail rotor trim:
If the model's nose turns to right or left when it lifts off, adjust the tail rotor trim buttons to correct the rotation until the model maintains a stable heading.

Pitch-axis trim:
If the model flies forward or back when it lifts off, adjust the pitch-axis trim until it hovers over one point.

Roll trim:
If the model moves bodily to left or right when it lifts off, adjust the roll trim until it remains in a stable hover.

Trim settings Mode 2

Throttle trim:
If the rotor starts to move without the throttle stick being touched, or does not respond to stick movements, you must adjust the throttle trim until the rotor is stationary.

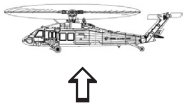
Tail rotor trim:
If the model's nose turns to right or left when it lifts off, adjust the tail rotor trim buttons to correct the rotation until the model maintains a stable heading.

Pitch-axis trim:
If the model flies forward or back when it lifts off, adjust the pitch-axis trim until it hovers over one point.

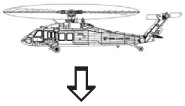
Roll trim:
If the model moves bodily to left or right when it lifts off, adjust the roll trim until it remains in a stable hover.

Controlling the model in Mode 1

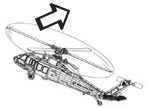
Lift off:



Landing:



Yaw left:

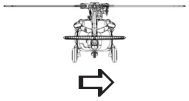


Yaw right:

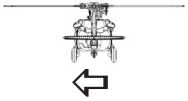
Pitch forward:

Pitch back:

Roll right:

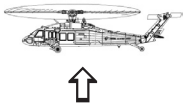


Roll left:

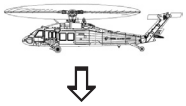


Controlling the model in Mode 2

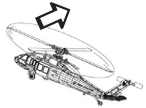
Lift off:



Landing:



Yaw left:

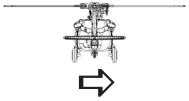


Yaw right:

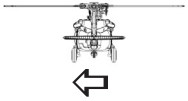
Pitch forward:

Pitch back:

Roll right:



Roll left:



CE

robbe Modellsport GmbH & Co. KG hereby declares that this device conforms to the fundamental requirements and other relevant regulations of the corresponding EC Directive. Under www.robbe.com, you will find the original Conformity Declaration by clicking on the Logo button "Conform" shown together with the appropriate device description.

This symbol means that you should dispose of electrical and electronic equipment separately from the household waste when it reaches the end of its useful life. Take your unwanted equipment to your local council collection point or recycling centre. This requirement applies to member countries of the European Union as well as other non-European countries with a separate waste collection system.

Disposal of batteries

Batteries must not be discarded as domestic refuse. To protect the environment, always return exhausted or defective cells to your local recycling centre. These include retail sales outlets for batteries, and communal toxic waste disposal centres. Cover any bare wires with insulating tape in order to avoid short-circuits.

robbe Modellsport GmbH & Co.KG

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